CLE 076

Introduction to Agile Software Acquisition

8-Enabling an Agile Acquisition Culture

Module TLO: Given a decision to include Agile offerors in an acquisition, the student will recognize cultural enablers and inhibitors to Agile embedded in the RFP and responses.

Subtopics

- 8.1 General & Agile-Specific Factors in Enabling Cultural Change
- 8.2 Organizational Climate
- 8.3 Project, Team & Customer Environment
- 8.4 System Environment
- 8.5 Technology & Process Support Environment
- 8.6 Understanding Your Organization/Program Adoption Risks for Agile Adoption

ELO

- ELO 1 - Discuss why Agile is considered a significant cultural change for DoD contracted programs.
- ELO 2 – Identify factors in typical acquisition organizational climate that enable or provide barriers to Agile practices adoption.
- ELO 3 – Identify Project, team, and customer environment factors that enable or provide barriers to Agile practices adoption.
- ELO 4 – Identify system, technology, and process support environment factors that enable or provide barriers to Agile practices adoption.
- ELO 5 – Provide an overview of the RFA process for understanding Agile adoption risks and enablers.

ELO Mapping to Sub-topics

Subtopic	ELO(s)
8.1 General & Agile-Specific Factors in Enabling Cultural Change	1
8.2 Organizational Climate	2
8.3 Project, Team & Customer Environment	3
8.4 System Environment	4
8.5 Technology & Process Support Environment	5
8.6 Understanding Your Organization/Program Adoption Risks for Agile Adoption	6, 5, 4, 3, 2

NOTE TO REVIEWERS

- Section 8.1 is a NON-example of the level of detail we're going for – it's too much and will get pared down in next iteration based on feedback from the team
  - However, the vignette is the type of story it would be nice to have at the beginning of each module
  - The assessment suggestions for 8.1 is generally ok at this point
- Sections 8.2 forward are the more desired level of detail that we would provide to the developer team….

Subtopic: 8.1 General & Agile-Specific Factors in Enabling Cultural Change

- Many models to enable*any* organizational change also apply to Agile adoption
  - Adler magnitude of change model
  - Rogers/Moore Adoption Population model
  - Satir Change Model
  - SEI Adoption Commitment model
  - Ward Cultural Influence Channels model
- There are some factors specific to Agile adoption to consider
  - Trust-based relationships
  - Enabling transparency (usually via information radiator-supportive ALCM tools)
  - Engineering support tools for automated testing/continuous

Suggested Content: Adoption Vignette to start module and provide assessment context at end

An Air Force organization responsible for managing the training certifications of pilots for different aircraft contracts for that software with companies that use Agile methods.

The government program office had never managed Agile contractors before. They recognized that this was a culture change for them, and hired a coach experienced in using Agile in government settings.

She surveyed the Program Office staff to determine the types of adopters who would be managing the contractor, and determined most were Early Majority (Pragmatic) with a few Early Adopters (including the Program Manager).

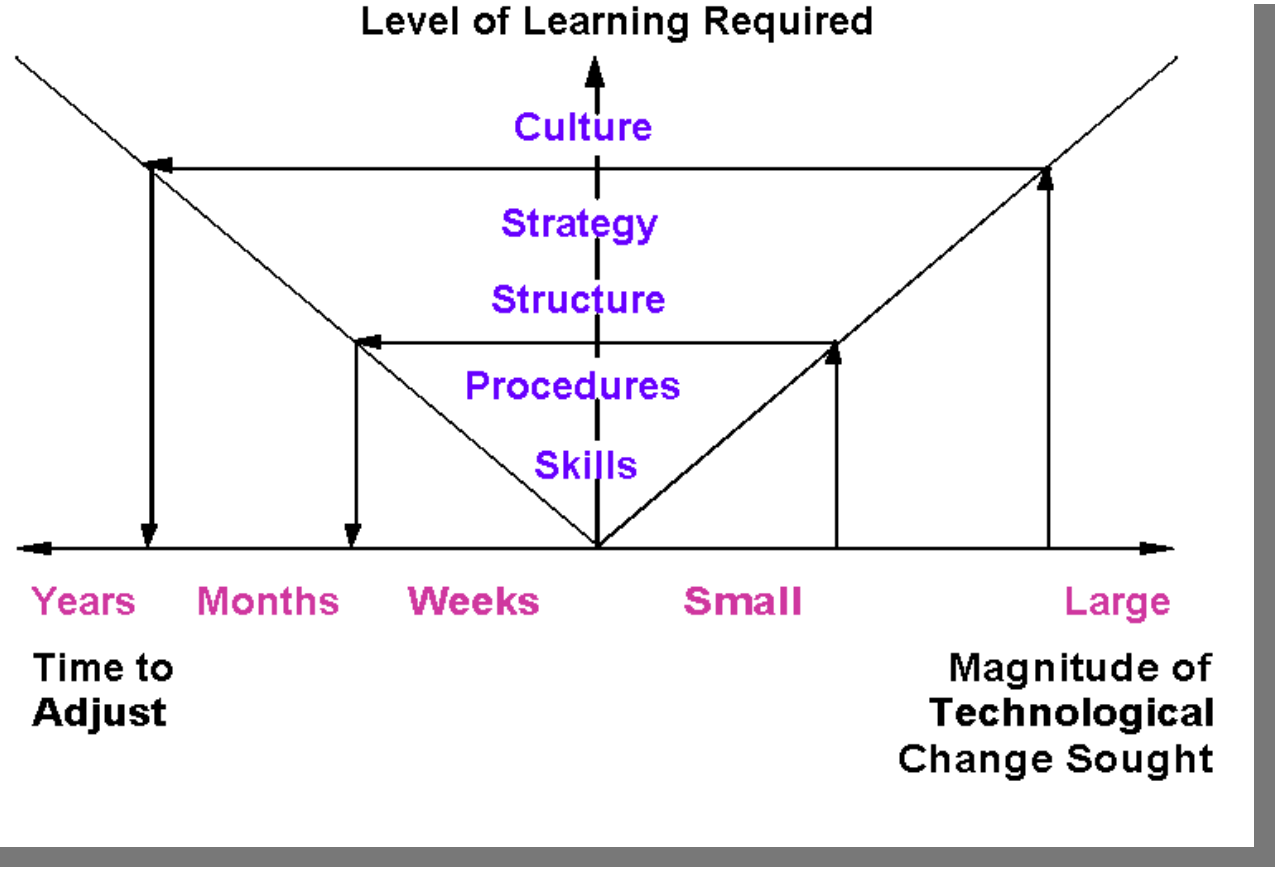
Those two populations need different kinds of communication (especially) and implementation support mechanisms. She constructed a program of Awareness briefings and lunch and learn sessions to move the government staff forward in the adoption, and then held a “Transforming Idea” workshop to help them translate what they had learned about Agile concepts into implementation support mechanisms (checklists, briefing templates, calendars of events, etc) that they would use in managing the contractor.

They also reviewed the different communication channels these mechanisms would use and adjusted the list to be developed to ensure that all channels were in use. The final step of the workshop was to review the “What’s Missing” picture to make sure that all elements (vision, skill, action plans, etc) had been addressed.

They then kicked off their first pilot project, a technical feasibility pilot – this pilot was populated with

Suggested Content: Adler Technology Model

- Adler Technology Model is used to answer the “how big is the change?” question (for any technology)
- MT: In most cases, Agile adoption is a CULTURE change for government organizations, so strategy, structure, skills, and procedures will all have to be addressed



Adler, P. and Shenhar, A. “Adapting Your Technological Base: The Organizational Challenge”, Sloan Management Review; Fall 1990; 32, 1

Suggested Content: Evidence that Agile is A Culture Change

BARRIERS TO FURTHER AGILE ADOPTION
At the agile initiative level, respondents cited organizational culture or a general resistance to change as their biggest barriers to further agile adoption, followed by not having the right skill set.
*Respondents were able to make multiple selections.
44% Ability to change organizational culture
35% Not enough personnel with the necessary agile experience
34% General organizational resistance to change
32% Pre-existing rigid/waterfall framework
29% Management support
24% Management concerns about lack of upfront planning
23% Business/user/ customer availability
22% Concerns about a loss of management control
16% No barriers
15% Confidence in methods for scaling agile
14% Concerns about the ability to scale agile
13% Development team support
12% Perceived time and cost to make the transition
11% Regulatory compliance

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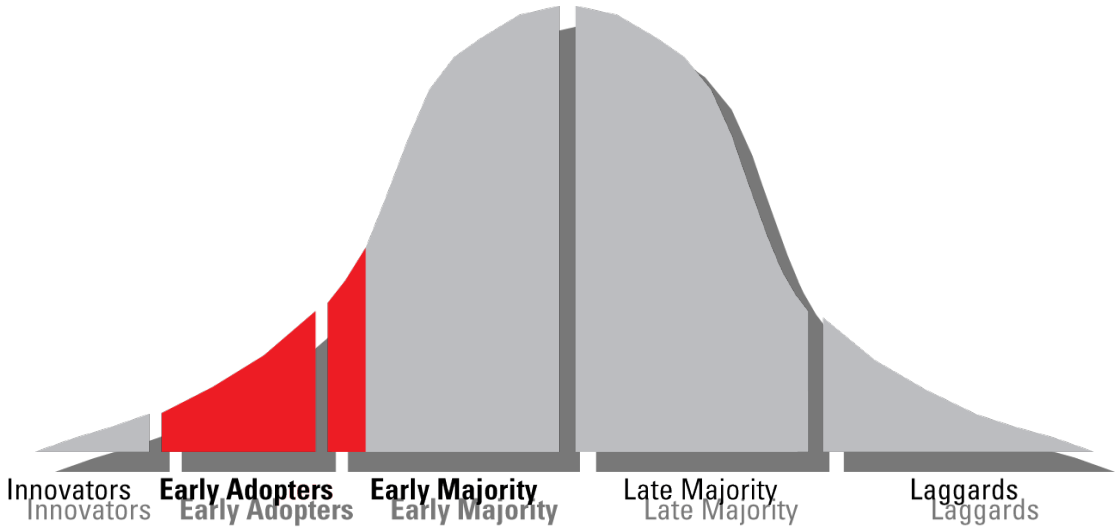
Suggested Content: Rogers/Moore Adoption Population Model

- Rogers/Moore adoption population model describes changes in different approaches to accepting new technologies that are relevant to what kinds of communication, training, etc are most useful
- MT: understanding the adoption category, especially of early pilots, helps you determine what support mechanisms are needed to promote a successful outcome



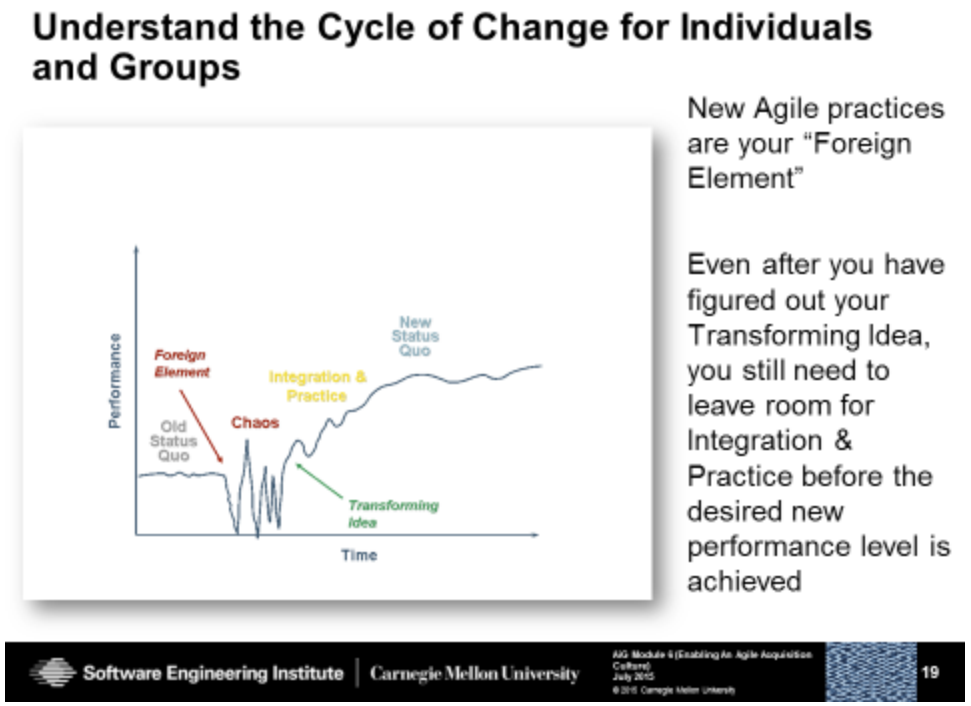
Moore, G. *Crossing the Chasm, 3rd edition.* Harper-Collins, 2014.

Suggested Content: Moore Adoption Population Category Implications

- Not all changes affect an individual the same way
  - Some people who are early adopters for one type of technology are laggards for another
  - Innovators and Early Adopters are good candidate for “technical feasibility” pilots – answering “Will the technology work at all?”
  - Early Majority and Late Majority are better for “adoption feasibility pilots”– answering “What does it take to make the technology work HERE?”

Source: Miller, S. et al. *Agile in Government: Practical Considerations,SEI* course for government settings. Copyright Carnegie Mellon University, 2016.

Suggested Content: Satir Change Model


Understand the Cycle of Change for Individuals and Groups
New Agile practices are your "Foreign Element"
Even after you have figured out your Transforming Idea, you still need to leave room for Integration & Practice before the desired new performance level is achieved
Performance
Foreign Element
Old Status Quo
Chaos
Integration & Practice
New Status Quo
Transforming Idea
Time
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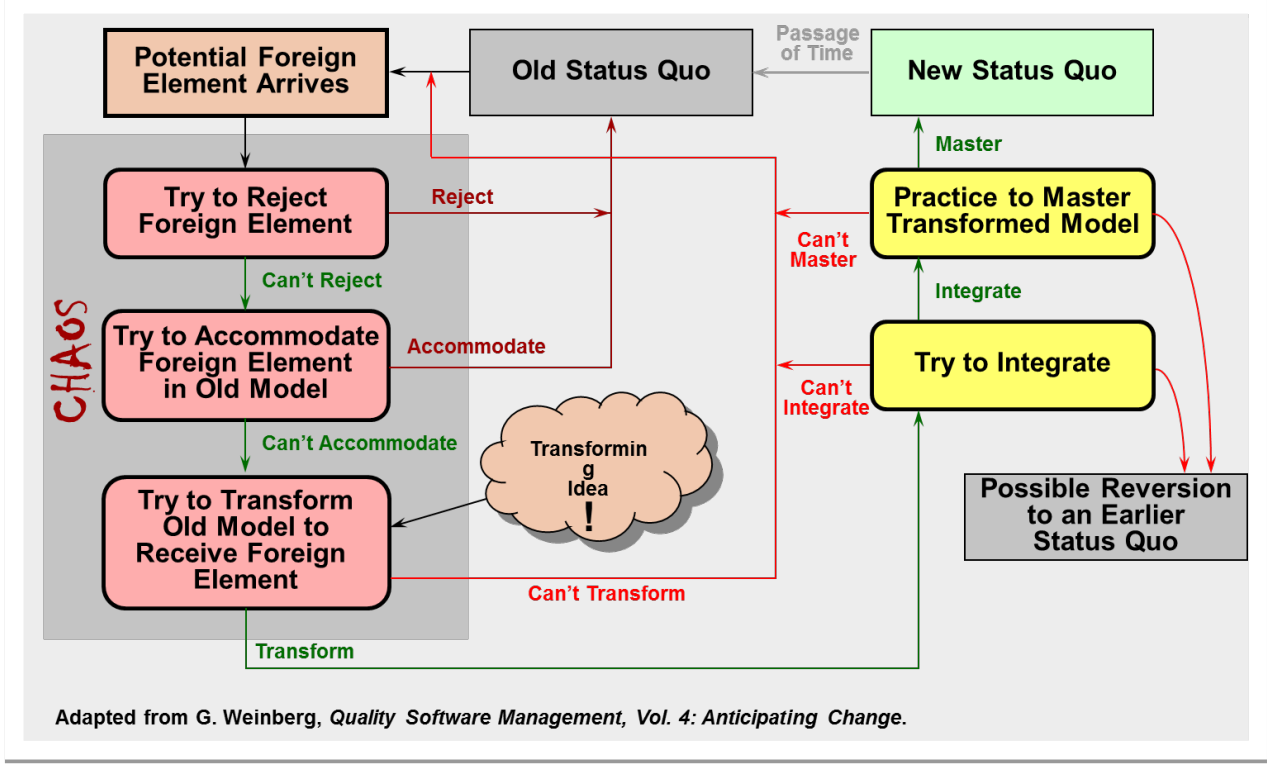
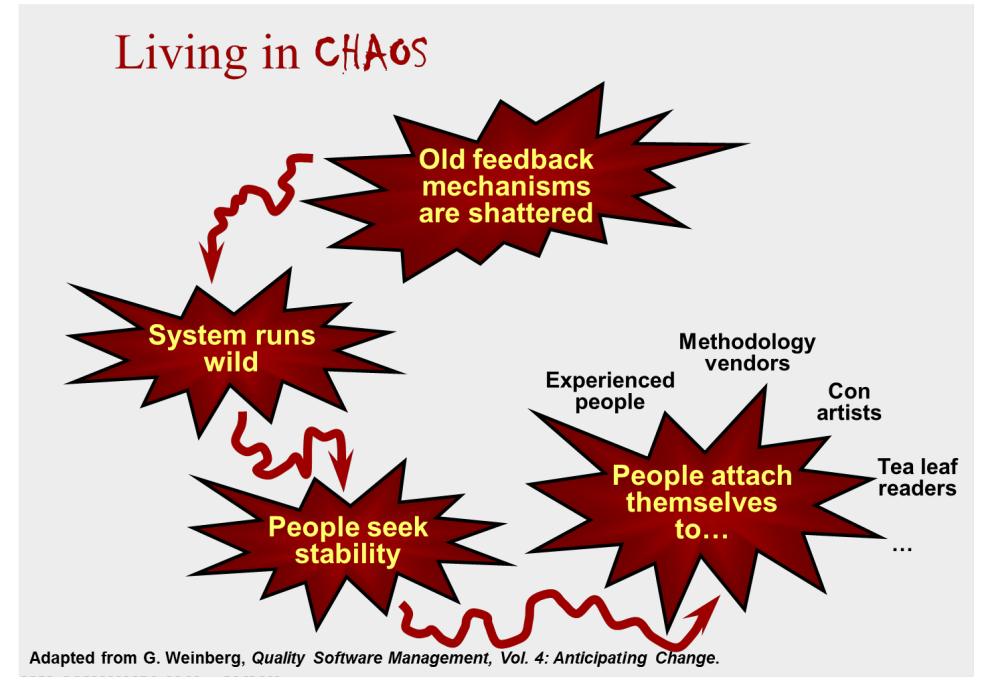
- MT: Individuals, groups, and organizations all go through a predictable cycle of dealing with change, whether the change is perceived positively or negatively
- Understanding where you (and groups you interact with) are in the cycle is a key to helping people through to a New Status Quo

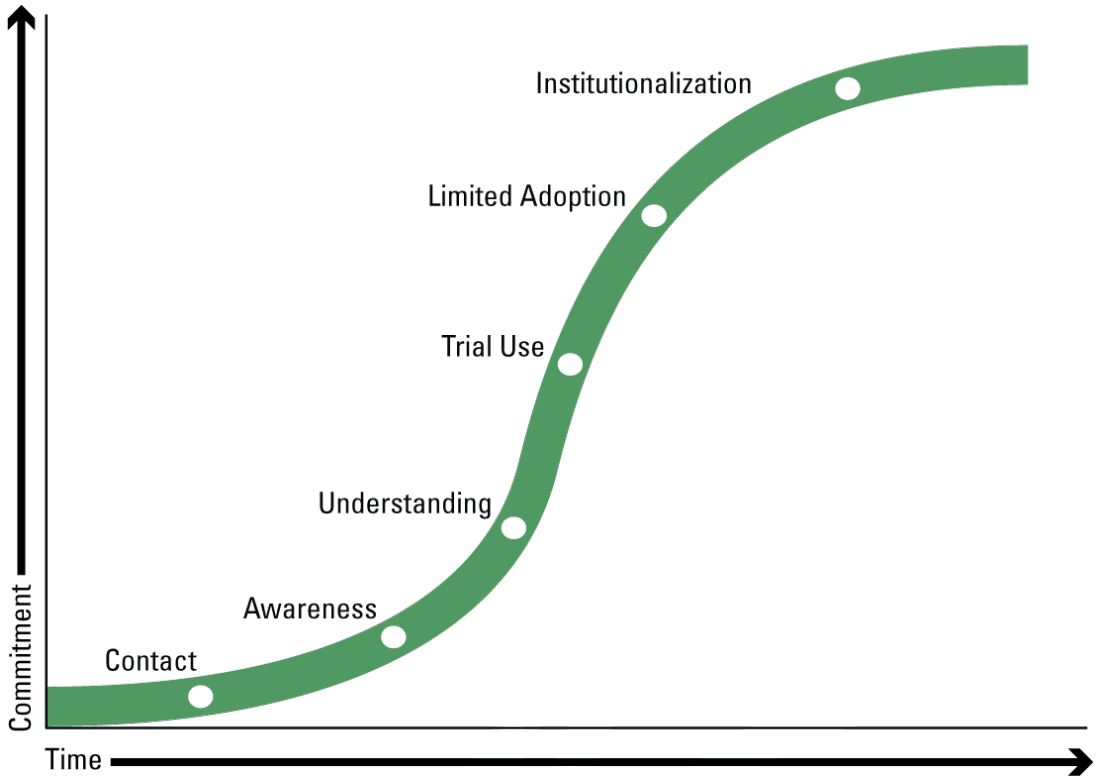
Suggested Content: Moving Through the Satir Change Cycle





Source: Miller, S. & Myers, C. "Process Improvement Tutorial", SEPG 2004. Copyright Carnegie Me

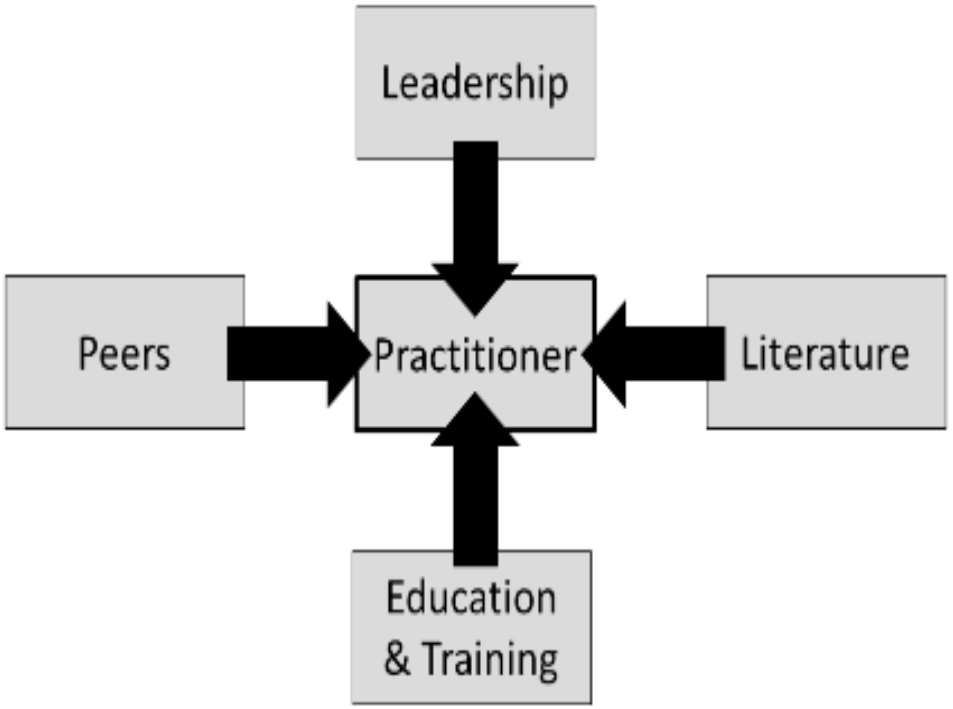
Suggested Content: SEI Adoption Commitment Model



*Adapted from Daryl R. Conner and Robert W. Patterson, "Building Commitment to Organizational Change,"
Training and Development Journal (April 1983): 18-30.

- The SEI Adoption Commitment Model illustrates the level of "energy" needed for individuals and groups to move through an adoption cycle
- MT: Different kinds of support mechanisms are needed at different stages
  - Communication mechanisms (like training, case studies) support Contact, Awareness, & Understanding
  - Implementation mechanisms (like checklists, measures) support Trial Use, Adoption, and eventually, Institutionalization

Suggested Content: Ward Cultural Influence Channels Model



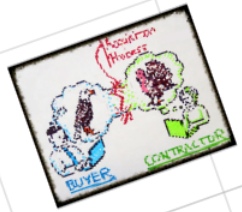
- Complementing the SEI Adoption Commitment model, Ward's Cultural Influence Channels model highlights the roles of Leadership and Peers as sources of influence, as well as classic influences of education, training, and literature
- MT: Agile adoption just at "grass roots" level won't change culture. A "leadership only" change won't work either. Both channels have to be engaged, and using multiple sources for "why we should do this"

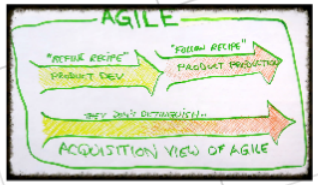
Source: Miller, S. & Ward, D. *Update 2015: Considerations for Use of Agile in Government,* SEI-TN-16-09, Software Engineering Institute, Carnegie Mellon University, January 2016.

Suggested Content: Agile-Specific Factors for Acquisition Contexts

Business & Acquisition Factors

Clear program goals
Defined success strategies
Project funding secured
Close user/developer collaboration enabled
Clear alignment sw goals/program goals
Interim Delivery enabled
Oversight supports agile principles
Appropriate contract type
Appropriate life cycle activities
Agile at scale enabled





Source: Miller, S. “Is Your Organization Ready for Agile? Part 1”, SEI blog, https://insights.sei.cmu.edu/sei_blog/2012/10/readiness-fit-analysis.html

- MT: There are some specific acquisition factors for Agile (e.g. enabling interim, incremental delivery) that go beyond typical technology adoption factors

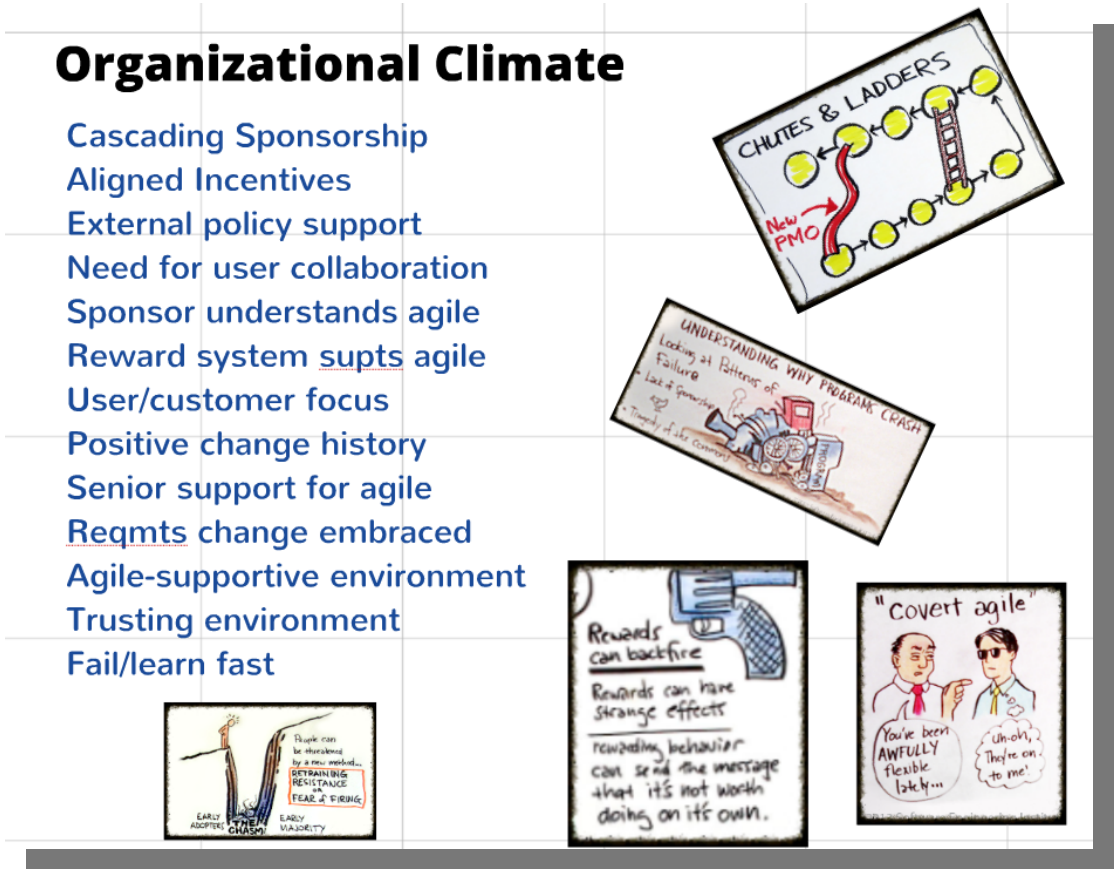
Assessment Suggestions

- Match game:
  - Column A = Adoption Population Categories (from the graphic)
  - Column B = likely reactions to adopting Agile (let SuZ Miller know if you need content for this column)
- Textra exercise:
  - Find the following x keywords in the adoption vignette. From the list below, associate each keyword to the model that it best relates to. (let SuZ Miller know if you need school solution for this)
- Multiple choice or T/F based on Major Takeaways

Subtopic: 8.2 Organizational Climate

- Leadership/sponsorship
- Communication
- Values
- Reward systems
- Structures
- Skills

Suggested Content: Organizational Climate Enablers for Agile Adoption



- MT: “Alignment” is a key term for Organizational Climate and other categories of adoption enablers –
  - alignment between the implementation and oversight,
  - alignment between the Agile tenets and principles and those of the organization
  - Alignment between the leadership and the managers and practitioners

Suggested Assessment Approach

- Multiple choice with factors addressed and distractors —”which of these reflect organizational climate issues?”

Suggested Content: Leadership Enablers & Barriers to Agile Adoption

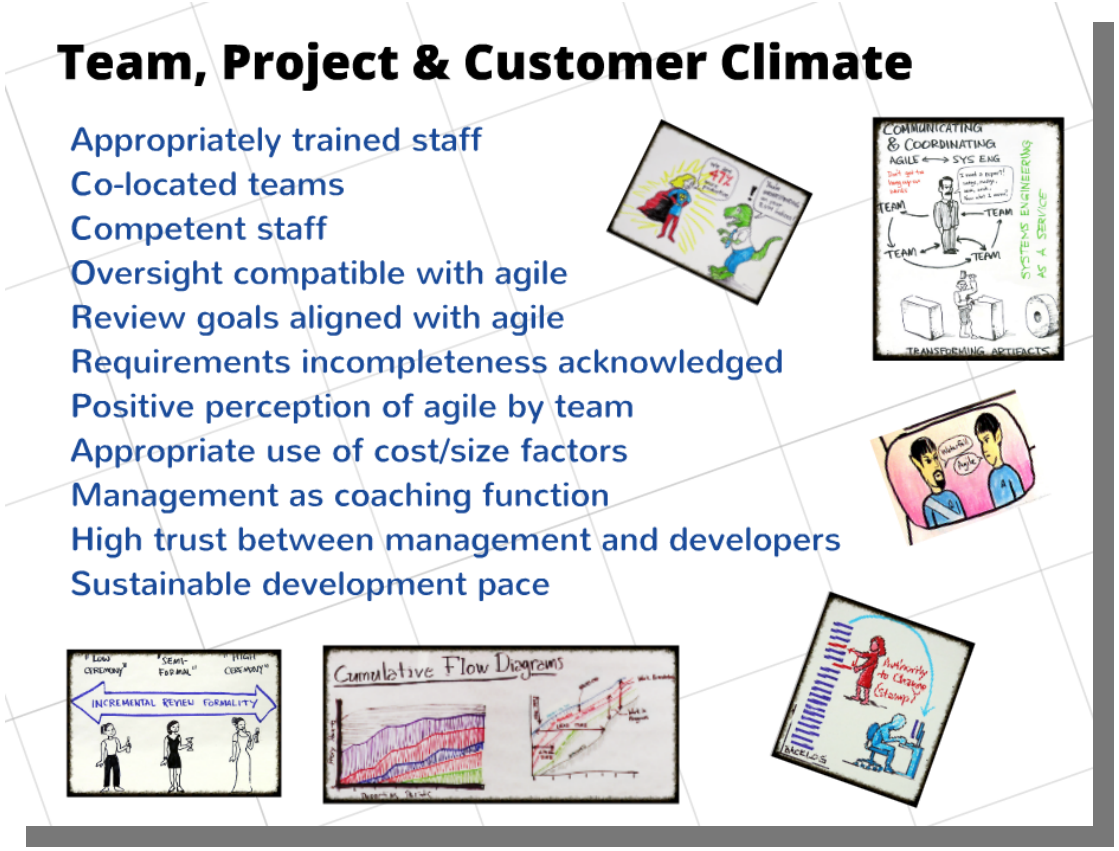
Leadership Style	Agile DoD	Traditional DoD
	• Facilitative leadership • Leader as champion and team advocate	• Leader as keeper of vision • Leader as primary source of authority to act

- Leadership sponsors the change; for the adoption to be successful, leadership must understand how their role changes and what the new questions are to ask to drive new behaviors.
- MT: Without the leadership vision, confusion about the adoption is apparent within the organization.

Subtopic: 8.3 Project, Team & Customer Environment

- Predictable pace
- Communication
- Trust
- Alignment
- Collaboration

Suggested Content: Project, Customer & Team Environment Enablers for Agile Adoption



- MT: Although much Agile adoption focuses at the team level, the project and customer climate have significant effect on the program's ability to execute an Agile development successfully, although some of the factors (e.g. appropriately trained staff) are factors in ANY successful program

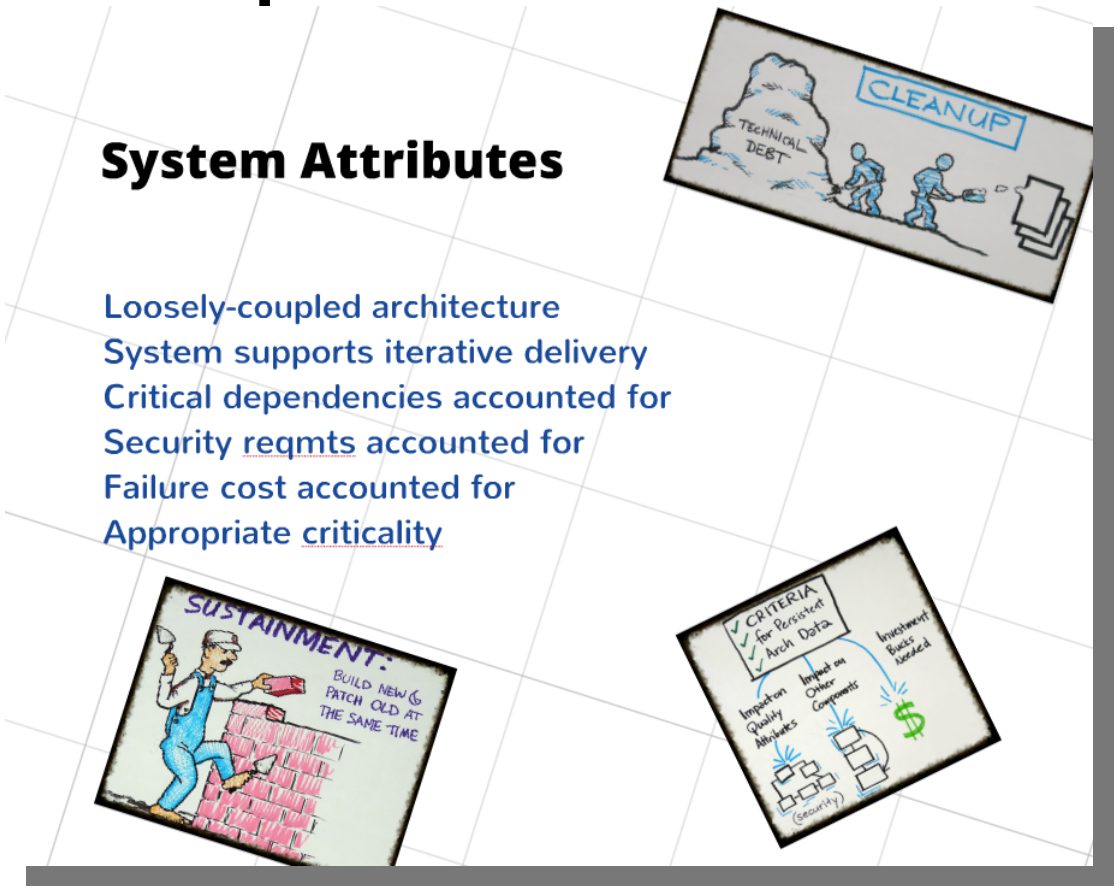
Suggested Assessment Approach

- Multiple choice with factors addressed and distractors —”which of these reflect project, team, or customer environment issues?”

Subtopic: 8.4 System Environment

- Loosely coupled architecture
- Interactions with systems engineering
- Incremental delivery enabled

Suggested Content: System Environment Enablers for Agile Adoption



- MT: Although most of the Agile adoption enablers are focused on people issues, there are some aspects of the system being developed or evolved that have an effect as well
  - Loosely-coupled architecture is a particularly powerful enabler, if present

Suggested Assessment Approach

- Multiple choice with factors addressed and distractors —”which of these reflect system issues?”

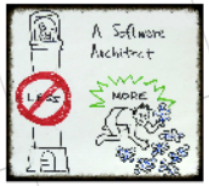
Subtopic: 8.5 Technology & Process Support Environment

- Contracting supports
- Automated testing
- Continuous integration tooling
- Short iterations
- Self-organizing teams
- Practices for supporting decentralized decision making

Suggested Content: Technology and Practice Enablers to Agile Adoption

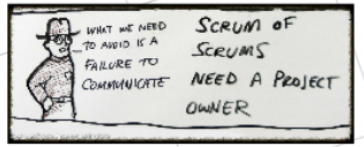
Technology Environment

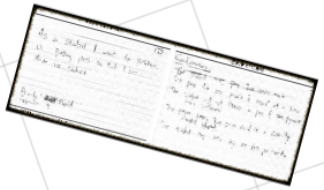
Technology and tools support agile
Project tools support agile
Project technologies accounted for



Agile Practices

Test-driven development
Short (<6 wk) iterations
User stories
Continuous integration
Prioritized Product Backlog
Product Owner
Relative estimation
Management as Barrier Remover
Self-organizing team
Self-managing team
Pair programming
Daily stand up meetings
End-Iteration Demos
End-Iteration Retrospectives





Suggested Content: Technology & Practice Enablers-2

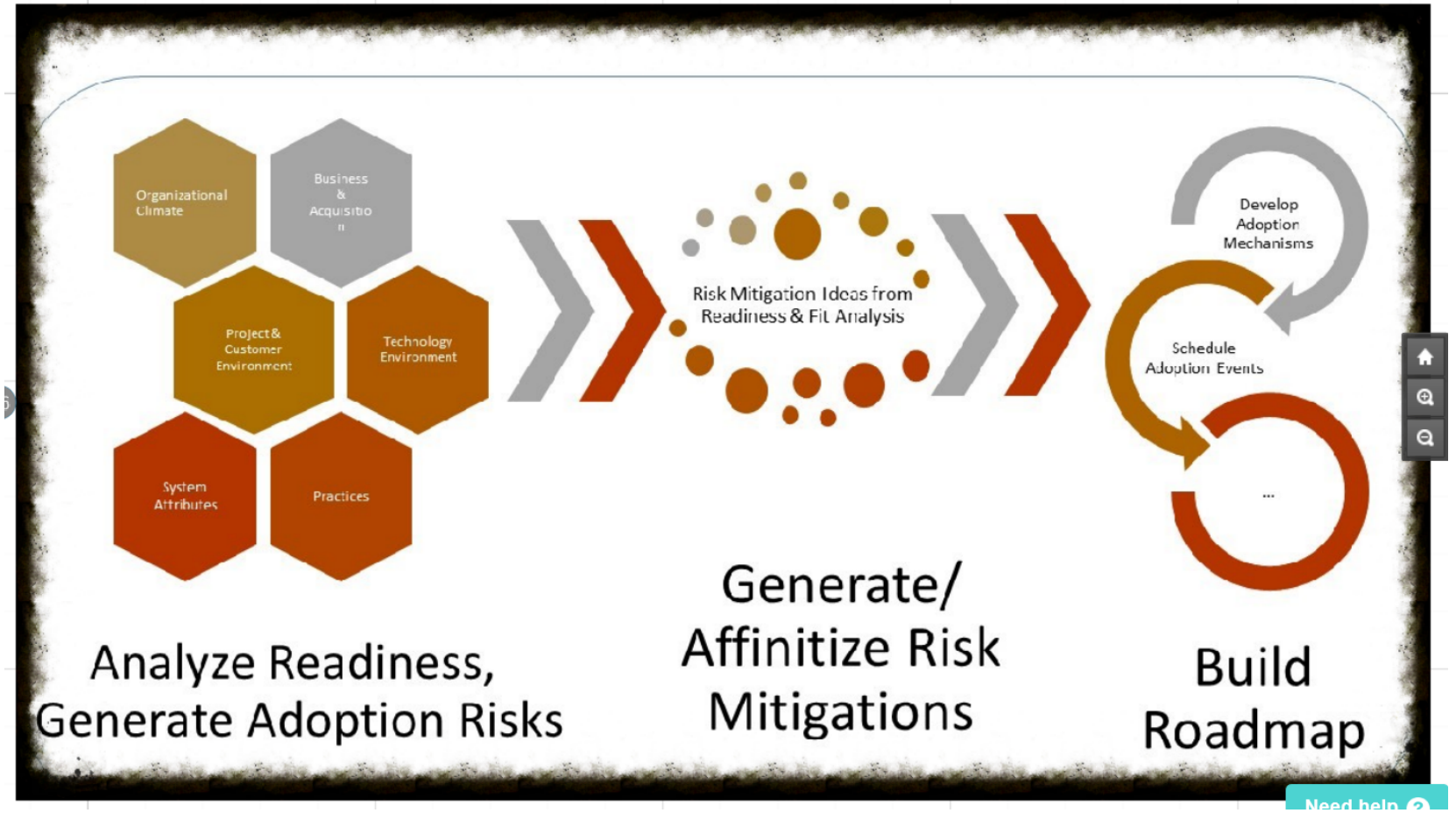
- MT: Although “individuals and interactions over processes and tools” is an Agile Manifesto tenet, it’s also true that the most successful organizations adoption Agile have made appropriate investments in choosing the right Agile practices and supporting tools for their environments
  - In particular, technology and organizational support for automated testing and continuous integration are key technology/process enablers

Suggested Assessment Approach

- Multiple choice with factors addressed and distractors —”which of these reflect technology or process enablement issues?”

Subtopic: 8.6 Understanding Your Own Organization's Adoption Risks/Mitigations

- Overview of SEI Readiness & Fit Analysis



Suggested Assessment Approach

- Multiple choice with factors addressed and distractors —”which of these is NOT a step in the SEI’s Agile Readiness & Fit approach?”
- T/F: “The Agile RFA index # is the most important results of the analysis.” (False—the risks particular to the setting doing the assessment are the most important results)